

REMARKS

The invention relates to a transgenic mouse and a sperm cell comprising a mammalian retrotransposon.

Claims 34 through 49 are pending in the present application. Claims 35, 45 and 48 were canceled in an Amendment filed on April 16, 2002. Therefore, claims 34, 36-44, 46, 47 and 49 currently pending and under examination.

Drawings

The drawings were objected to in the Notice of Draftperson's Patent Drawing Review mailed on December 17, 2001. The Examiner has required new drawings. New drawings are submitted herewith along with a Transmittal of Formal Drawings.

Oath/Declaration

The Examiner has indicated that the Oath/Declaration is defective. Specifically, the Examiner states that non-initialed and/or non-dated alterations were made to residence, citizenship and post office address of John Moran in the Oath/Declaration.

Applicants submit herewith a newly executed declaration of John Moran.

Rejection of claims 34, 36-44, 46, 47 and 49 under 35 U.S.C. § 112, first paragraph

The Examiner has maintained the rejection of claims 34, 36-44, 46, 47 and 49 pursuant to 35 U.S.C. §112, first paragraph, for failing to comply with the enablement requirement. Specifically, the Examiner is of the opinion that the specification fails to provide an enabling disclosure for the claimed transgenic mouse because the phenotype of the mouse is unpredictable, and therefore, in the Examiner's view, the specification does not teach how to use the claimed transgenic mouse. The Examiner asserts that in the absence of an "appropriate phenotype", the skilled artisan would not know how to use the claimed transgenic mouse. The Examiner also writes that "[t]he only utility asserted in the specification that rises to the level of a specific and substantial utility is the use of the transgenic mouse as a disease model." For this reason, the Examiner has not levied a rejection under 35 U.S.C. §101.

Applicants, while not wishing to acquiesce to the Examiner's reasoning, but rather in a good faith effort to expedite the prosecution of the present application, have amended

claim 34 to recite a transgenic mouse comprising an isolated DNAc molecule, wherein said DNAc molecule integrates into the genome of said transgenic mouse. Support for the present amendment to claim 34 can be found throughout the specification as filed, specifically at page 16, beginning at line 1, where retrotransposons that can integrate into the genome are described. Further support can be found at, for example, page 38, line 8, where transgenic animals comprising a retrotransposon integrated into the genome are described. Thus, the present amendment adds no new matter.

The Examiner argues that the specification fails to provide an enabling disclosure for the claimed transgenic mouse because the phenotype of the mouse is unpredictable, and therefore, in the Examiner's view, the specification does not teach how to use the claimed transgenic mouse.

It is hornbook law that "If a statement of utility in the specification contains within it a connotation of how to use, and/or the art recognizes that the standard modes of administration are known and contemplated, 35 U.S.C. 112 is satisfied." MPEP §2164.01(c). See also *In re Johnson*, 282 F.2d 370, 373, 127 USPQ 216, 219 (CCPA 1960); *In re Hitchings*, 342 F.2d 80, 87, 144 USPQ 637, 643 (CCPA 1965); *In re Brana*, 51 F.2d 1560, 1566, 34 USPQ2d 1437, 1441 (Fed. Cir. 1993).

The same section of the MPEP also provides:

[W]hen a compound or composition claim is not limited by a recited use, *any enabled use that would reasonably correlate with the entire scope of that claim is sufficient to preclude a rejection for nonenablement based on how to use*. If multiple uses for claimed compounds or compositions are disclosed in the application, then an enablement rejection must include an explanation, sufficiently supported by the evidence, why the specification fails to enable each disclosed use. In other words, if any use is enabled when multiple uses are disclosed, the application is enabling for the claimed invention. (Emphasis added)

Applicants respectfully submit that the use of the claimed transgenic mouse and sperm cell, set forth in the specification as filed and further elucidated below, reasonably correlate with the entire scope of the claim and therefore preclude the Examiner's rejection based on how to use the claimed transgenic mouse and sperm cell.

Applicants amendment to claim 34 recites that the isolated DNAc molecule integrates into the genome of the transgenic mouse. The specification as filed provides many

such uses for the transgenic mouse and sperm cell presently claimed. As an example, on page 16, beginning at line 7, there is described a use for the transgenic animal, or the cells thereof, for random insertional mutagenesis in the animal. At page 20, beginning at line 24, the specification as filed discloses the use of a transgenic animal comprising a DNAc molecule useful for generating mutations in a cell and for the generation of transposon mutagens. Beginning at page 27, line 22, the specification as filed describes making and *using* transgenic mice comprising a DNAc molecule for generating high frequency mutation. As is further described at page 28, beginning at line 4, this high frequency mutation can be *used* to provide mutations in a variety of genes, including genes which provide resistance or susceptibility to tumor development. Thus, the skilled artisan, when equipped with Applicants' disclosure and the Examples set forth therein, could *use* the transgenic mammal and the sperm presently claimed to illuminate the function of various genes in which the DNAc molecule integrated. A gene that had a previously unknown function, when disabled by DNAc molecule integration, could prove to be a tumor suppressor, a key gene in a metabolic process, a gene responsible for a vital physiological process, or another element of the biochemical processes in a transgenic mouse. Further, as disclosed at page 28, beginning at line 8, the transgenic mouse of the present invention is *useful*, especially compared to other systems of discovering gene function, because only one copy of the gene integrates into any specific chromosomal location, allowing specific analysis of one mutation on the rest of the transgenic mouse's biological functions, rather than a less specific "shotgun" approach that may result in no control over the number of copies integrated into the genome.

At page 33, beginning at line 10, the specification as filed provides the skilled artisan with enablement for *using* the transgenic mouse and sperm of the present invention for transposon mutagenesis experiments. Beginning at page 37, line 3, the specification as filed describes how to *use* the present invention to generate a library of cells comprising a knockout or mutated gene. The specification continues to describe that present use can be employed to isolate and identify both wild type and mutant forms of genes, which may not have been isolated, or may not have even been known without the present invention. At page 38, the use of transgenic mice in developing transgenic breeder stocks, which are *useful* in elucidating animal and gene function and also evaluation targets for gene therapy or classical drug intervention.

At page 38, beginning at line 27, the specification as filed provides a *use* for a transgenic mouse and a sperm thereof, specifically the evaluation of the mutagenic potential of an animal. Such a mutagenic potential can be useful in determining whether the mouse is a useful model of other diseases, or if its mutagenic potential overshadows its use as a stable model for any other types of experiment.

The transgenic mouse of the present invention can also be *used* to identify a compound having anti-mutagenic potential. Specifically, at page 39, beginning at line 7, the specification as filed describes how to use a transgenic mouse or a cell comprising a DNAc molecule for identifying an anti-mutagenic compound based on the frequency of retrotransposition in the mouse or cell.

The Examples set forth in the present specification offer specific modalities for carrying out the many uses set forth elsewhere in the specification. At page 44, beginning at line 22, there is described a system for detecting L1 retrotransposition, which can be used for assessing the mutagenic potential, transposition frequency and/or identification of an anti-mutagenic compound in a transgenic mouse. At page 50, beginning at line 1, the Examples demonstrate that copies of the retrotransposon cassette insert into different chromosomes, evidence of the random mutagenesis potential embodied in the present invention. At page 53, beginning at line 9, the specification as filed describes the retrotransposon frequency of L1 elements in mouse cells, demonstrating the *usefulness* of the presently claimed mouse and sperm cell thereof.

Applicants respectfully submit that the standard for establishing the use of a compound or composition claim, such as those presently under examination, is clearly set forth in the MPEP and has been met by Applicants. The enabled uses reasonably correlate with the scope of the claims as presently amended, which precludes a rejection for non-enablement based on how to use the transgenic mouse and sperm cell of the present invention. Further, the MPEP provides that if any use is enabled when multiple uses are disclosed, the application is enabling for the claims. As described above, multiple uses are disclosed for the claimed invention, and all of these claimed uses are enabled based on the Detailed Description and Examples provided in the present invention. Therefore, the claims, as amended and presently under consideration, are enabled and Applicants respectfully request reconsideration and withdrawal of the Examiner's rejection pursuant to 35 U.S.C. §112, first paragraph, for lack of enablement.

Summary

Applicants respectfully submit that each rejection of the Examiner to the claims of the present application has been overcome or is now inapplicable, and that claims 34, 36-44, 46, 47 and 49 are now in condition for allowance. Applicants further submit that no new matter has been added by way of the present amendment. Reconsideration and allowance of these claims is respectfully requested at the earliest possible date.

Respectfully submitted,

Haig Kazazian *et al.*

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(Date)

By:



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Enclosures: Petition for Three (3) Month Extension of Time
Request for Continued Examination
Thirty-Three (33) Sheets of Drawings
Transmittal of Formal Drawings
Change of Address
Executed Declaration and Power of Attorney of John V. Moran

